

May 20 10 15 AM '99

**ENVIRONMENTAL COMPLIANCE SERVICES, INC.**

May 19, 1999  
Project #40093.10  
Document: Site\_inv.599

Mr. Chuck Schwer, Supervisor  
Sites Management Section  
VT DEC Waste Management Division  
103 South Main Street  
Waterbury, VT 05671-0404

**RE: Site Investigation Report  
Sam's Gulf/ Falzo's Garage, Bellows Falls, VT  
SMS Site #98-2414**

Dear Mr. Schwer:

Enclosed please find the above-referenced report for your review. If you have any questions or require further information, please call me at 802-257-1195.

Sincerely,  
ENVIRONMENTAL COMPLIANCE SERVICES, INC.

David C. Balk, P.G.  
Project Manager

enclosure

cc: Lee Merrill, Barrows Coal Company

Phase	Type
<b>X Initial Site Investigation</b> <input type="checkbox"/> Corrective Action Feasibility Investigation <input type="checkbox"/> Corrective Action Plan <input type="checkbox"/> Corrective Action Summary Report <input type="checkbox"/> Operations and Monitoring Report	<input type="checkbox"/> Work Scope <b>X Technical Report</b> <input type="checkbox"/> PCF Reimbursement Request <input type="checkbox"/> General Correspondence

May 20 10:15 AM '99

**Site Investigation Report**  
 Sam's Gulf/ Falzo's Garage  
 134 Atkinson Street  
 Bellows Falls, Vermont  
 SMS Site #98-2414

*Prepared for:*

Barrows Coal Company  
 35 Main Street  
 Brattleboro, Vermont 05301  
 Contact: Lee Merrill  
 Phone: (802) 254-4574

*Prepared by:*

Environmental Compliance Services, Inc.  
 157 Old Guilford Road #6  
 Brattleboro, VT 05301  
 Contact: David C. Balk, P.G.  
 Phone: (802) 257-1195

Project No.: 40093.10

May 19, 1999

**Site Investigation Report  
Sam's Gulf /Falzo's Garage, Bellows Falls  
Site #98-2414**

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## 1.0 Introduction

This is an investigation report for Sam's Gulf/ Falzo's Garage in Bellows Falls, VT (see Site Locus Map, Appendix A), covering a second round of sampling as requested by the Vermont Department of Environmental Conservation in a letter dated January 21, 1999. Environmental Compliance Services, Inc. of Brattleboro, VT submitted an initial investigation report on January 15, 1999 to the VT DEC on behalf of Barrows Coal Company. The investigation report recommended additional groundwater sampling and analysis during seasonal wet periods.

This report documents the work performed by ECS at the site and presents results, conclusions and recommendations.

## 2.0 Site Description

The subject property exists at an elevation of approximately 315 feet above mean sea level. The Falzo's Garage site has one building which is divided into an office space and two service bays. The site is surrounded by commercial and residential property. To the east is Atkinson Street with the railroad tracks and Connecticut River beyond that. To the south is Green Mountain Power Corporation and to the west is an apartment building. North of the site is Tuttle Street and the Bellows Falls Fire and Police Station. The building is connected to the town sewer system. Drinking water is supplied by the town well located topographically upgradient of the site, approximately one mile away.

Observations made during the piping upgrade in May 1998 indicate that the soils were dark brown, silt, coarse sand and gravel to 14 feet below ground surface (bgs). No ledge or groundwater was encountered in the test pit.

## 3.0 Work Performed

### 3.1 Groundwater Gauging and Sampling

Groundwater gauging and sampling was performed by ECS personnel on April 6, 1999. Depth to groundwater in each well was measured with a Slope electronic water level indicator from the top of the PVC well casings. The instrument is accurate to 0.01 foot.

Groundwater samples were obtained with disposable plastic bailers after three borehole volumes of groundwater were evacuated from each well. A duplicate groundwater sample from ECS-2 was obtained for quality control purposes. All samples were stored on ice immediately upon collection, and refrigerated until delivery was made to Spectrum Analytical, Inc. in Agawam, Massachusetts for analysis of BTEX compounds, MTBE, Trimethylbenzenes and Naphthalene by EPA Method 8021B.

## 4.0 Results

### 4.1 Groundwater Potentiometric Data

Data from the April 6, 1999 gauging of groundwater levels are presented in Table 1. Depth to groundwater ranged from 34.10 feet in ECS-1 to 35.55 feet in ECS-2, and exhibited a slight increase in elevation since the December 1998 gauging event.

Table 1. Groundwater potentiometric data.

Date	ECS-1	ECS-2	ECS-3
PVC elevation	100.74	101.58	101.49
4/6/99	66.64	66.03	66.20
12/16/98	65.94	65.50	65.66
Elevations measured in feet from an arbitrary datum.			

A groundwater potentiometric surface map is presented in Appendix B. The map shows that the groundwater flow direction is to the southeast, toward the Connecticut River.

### 4.2 Laboratory Analysis of Groundwater Samples

The groundwater samples obtained on April 6, 1999 were analyzed by EPA Method 8021B. Results are presented in Table 2, which includes Primary Groundwater Quality Standards (PGQS) for reference. The complete laboratory data sheets and chain of custody record are presented in Appendix C.

Date	Compound	PGQS	ECS-1	ECS-2	ECS-3
4/6/99	Benzene	5.0	ND	ND	ND
	Toluene	1000	ND	ND	ND
	Ethylbenzene	7000	ND	ND	ND
	Xylenes	10,000	ND	ND	ND
	Total BTEX		ND	ND	ND
	Naphthalene	20	ND	ND	ND
	1,2,4-Trimethylbenzene	5.0	ND	ND	ND
	1,3,5-Trimethylbenzene	4.0	ND	ND	ND
	MTBE	40	14	ND	ND
12/16/98	Benzene	5.0	ND	ND	ND
	Toluene	1000	ND	ND	ND
	Ethylbenzene	7000	ND	ND	ND
	Xylenes	10,000	ND	ND	ND
	Total BTEX		ND	ND	ND
	Naphthalene	20	ND	ND	ND
	1,2,4-Trimethylbenzene	5.0	ND	ND	ND
	1,3,5-Trimethylbenzene	4.0	ND	ND	ND
	MTBE	40	120	ND	ND
Results reported in ug/L (ppb). ND = Not detected. Split cells indicate duplicate analyses. Boldface type indicates PGQS exceedances.					

## 5.0 Conclusions and Recommendations

### 5.1 Conclusions

ECS presents the following conclusions based on the information obtained at the site to date:

- Groundwater flow direction has been interpreted to be to the southeast, in the direction of the Connecticut River. Depth to groundwater at the site is greater than 34 feet.
- MTBE was detected at a concentration less than its PGQS in groundwater from a monitoring well installed to the east of the gasoline USTs. A decreasing trend in MTBE concentrations is evident based on results from the December 1998 and April 1999 sampling events.
- No bedrock or confining layer was encountered during soil boring advancement.
- No VOCs were detected in the indoor air of the site building, the nearest structure to the USTs and pump island. The site is served by municipal drinking water and sewer systems.

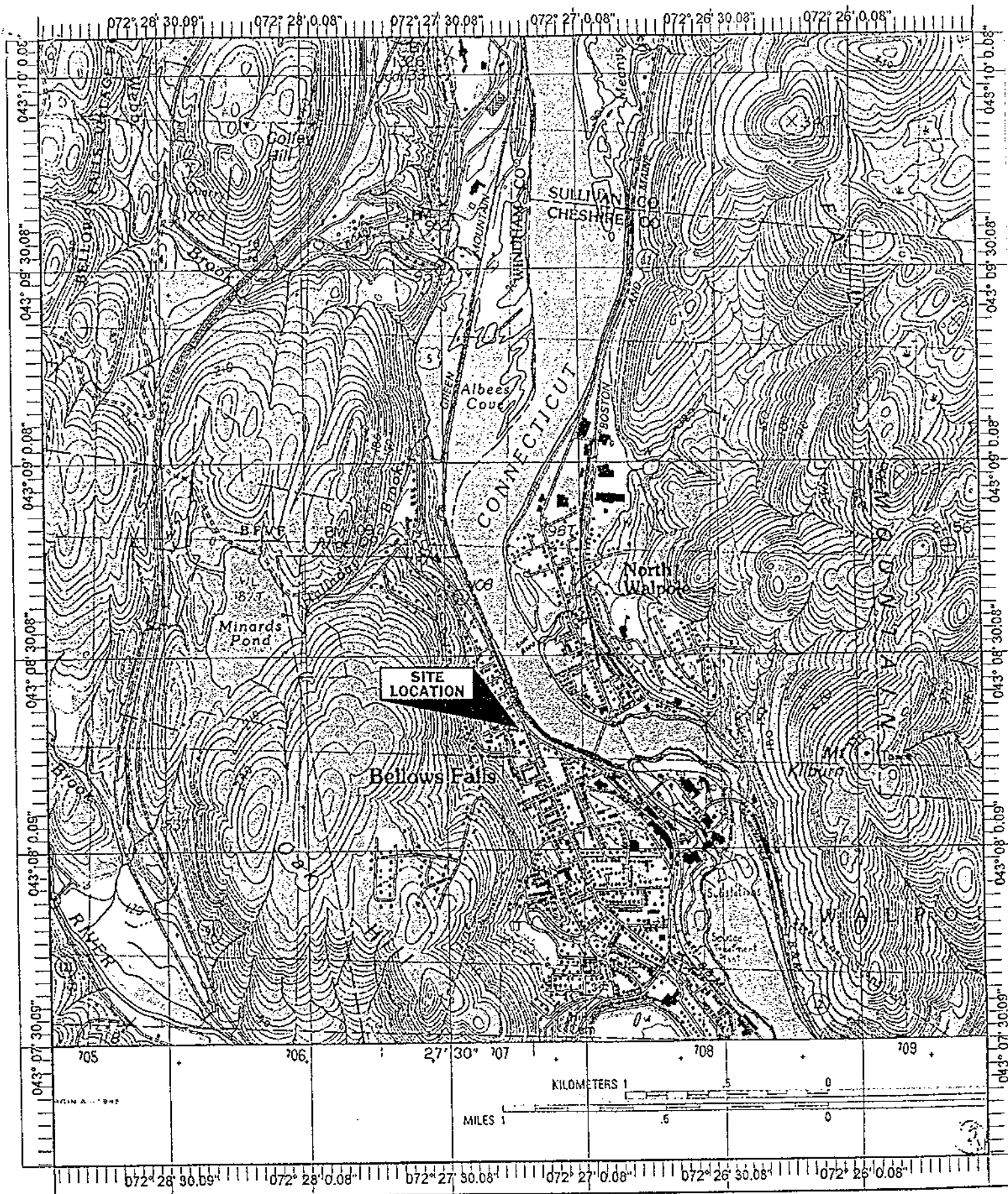
### 5.2 Recommendations

Due to the substantial depth to groundwater, decreasing trend in MTBE levels, which have recently been shown to be below PGQS, and the absence of petroleum related VOCs in downgradient monitoring wells, ECS recommends that the site be evaluated for a Sites Management Activities Completion designation.

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6/11  
- 2 data points indicate trend  
- high MTBE levels during oil boring / NW installation  
- wells are not in good position of only 3 wells  
⇒ trend of sampling sample again in Fall  
- refer to letter (11/21); recent wells are necessary but not yet good enough to SPILL

*Appendix A*  
*Site Locus Map*



Name: BELLOWS FALLS  
 Date: 5/13/98  
 Scale: 1 inch equals 2000 feet

Location: 043° 08' 38.8" N 072° 27' 14.5" W  
 Caption: Site Locus Map  
 Falzo's Garage  
 134 Atkinson St., Bellows Falls

*Appendix B*

*Groundwater Potentiometric Surface Map*

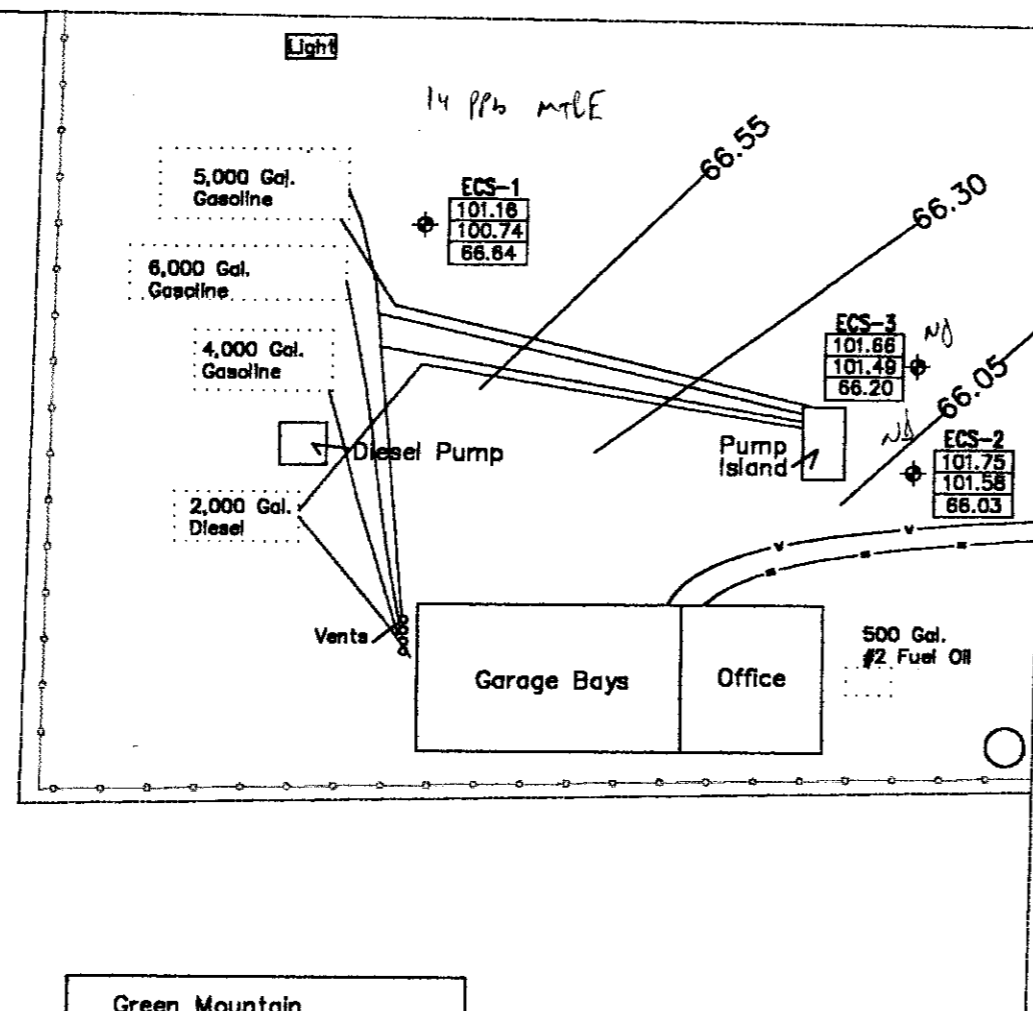
North



Fire & Police Station

Tuttle Street

#6 Tuttle Street  
Residence



Green Mountain  
Power Corporation

Atkinson Street

Route 5

Sidewalk

Slope to Connecticut River

# Legend

- Approximate Property Line
- Monitoring Well
- Monitoring Well Identification
  - ECS-2
  - 101.75
  - 101.58
  - 65.50
- Rim Elevation
- PVC Elevation
- Groundwater Elevation
- Water Line
- Sewer Line
- Fence Line
- Groundwater Contour
- Catch Basin
- USTs & Piping
- Utility Pole

## General Notes:

Site Plan prepared from information obtained from the Town of Bellows Falls Assessor's office and a site visit by ECS, Inc. personnel.

All locations, dimensions of the site features, and property lines are approximate. This plan should not be used for construction or land conveyance purposes.

Vertical and horizontal location of monitoring wells and selected site features determined by a site survey conducted by ECS, Inc. personnel.

Groundwater contours are based on measurements made on 4/6/99. Fluctuations in the level of groundwater may occur due to factors not accounted for at the time these measurements were made.

Groundwater contours and flow directions assumed homogenous, isotropic aquifer conditions, and horizontal flow.

Groundwater contours are interpolated between data points and inferred in other areas.



ENVIRONMENTAL COMPLIANCE SERVICES, INC.  
187 Old Guilford Road, #6, Brattleboro, VT 05301

PROJECT:

Falzo's Gulf  
Atkinson & Tuttle Streets  
Bellows Falls, VT

TITLE:  
Site Plan with Groundwater Contours, 4/6/99

CLIENT:  
Barrows Coal Company

GRAPHIC SCALE:  
30 15 0 15 30

COMPUTER FILE: F2-40093.1.dwg

DRAWN BY: DESIGNED BY: CHECKED BY: APPROVED BY:

CS CS DCB BET

SCALE: DATE: JOB NO.: FIGURE NO.:

1" = 30' May 1999 40093.10 2

*Appendix C*

*Laboratory Data Sheets and Chain of Custody Record*



SPECTRUM ANALYTICAL, INC.

Massachusetts Certification M-MA 138  
Connecticut Approval # PH 0777  
Rhode Island # 98 & Maine # n/a  
New Hampshire ID # 2538  
New York ID #11393  
Florida HRS87448

*ECS, Inc.  
157 Old Guilford Road, #6  
Brattleboro, VT 05301*

*April 21, 1999*

*Attn: David Balk*

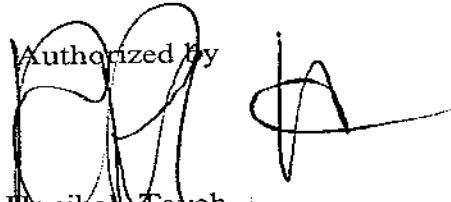
Client Project No.: 40093.20      Location: Falzo Gulf - Bellows Falls, VT

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<u>Lab ID No.</u>	<u>Client ID</u>	<u>Analysis Requested</u>
AB39146	ECS-1	EPA Method 8021B
AB39147	ECS-2	EPA Method 8021B
AB39148	ECS-3	EPA Method 8021B
AB39149	DUP	EPA Method 8021B
AB39150	TRIP	EPA Method 8021B

---

Authorized by

  
Hanibal Tayeh  
President/Laboratory Director

ENVIRONMENTAL ANALYSES

# SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: ECS-1  
Lab ID No: AB39146

Location: Falzo Gulf - Bellows Falls, VT  
Client Job No: 40093.20

Matrix: Ground Water  
Sampled on 04/06/99 by ECS  
Received on 04/07/99 by KC  
QC and Data Review by MD

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Courier

### Volatile Organics

EPA Method 8021B

Parameter for AB39146	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	1.0	04/20/99	DG
Toluene	Not detected	1.0	04/20/99	DG
Ethylbenzene	Not detected	1.0	04/20/99	DG
m,p-Xylenes	Not detected	2.0	04/20/99	DG
o-Xylene	Not detected	1.0	04/20/99	DG
Naphthalene	Not detected	1.0	04/20/99	DG
1,2,4-Trimethylbenzene	Not detected	1.0	04/20/99	DG
1,3,5-Trimethylbenzene	Not detected	1.0	04/20/99	DG
Methyl-t-butyl ether	14	1.0	04/20/99	DG
Bromofluorobenzene (%SR)	120		04/20/99	DG

# SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: ECS-2  
Lab ID No: AB39147

Location: Falzo Gulf - Bellows Falls, VT  
Client Job No: 40093.20

Matrix: Ground Water  
Sampled on 04/06/99 by ECS  
Received on 04/07/99 by KC  
QC and Data Review by

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Courier

### Volatile Organics

EPA Method 8021B

Parameter for AB39147	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	1.0	04/20/99	CH
Toluene	Not detected	1.0	04/20/99	CH
Ethylbenzene	Not detected	1.0	04/20/99	CH
m,p-Xylenes	Not detected	2.0	04/20/99	CH
o-Xylene	Not detected	1.0	04/20/99	CH
Naphthalene	Not detected	1.0	04/20/99	CH
1,2,4-Trimethylbenzene	Not detected	1.0	04/20/99	CH
1,3,5-Trimethylbenzene	Not detected	1.0	04/20/99	CH
Methyl-t-butyl ether	Not detected	1.0	04/20/99	CH
Bromofluorobenzene (%SR)	125		04/20/99	CH

# SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: ECS-3  
Lab ID No: AB39148

Location: Falzo Gulf - Bellows Falls, VT  
Client Job No: 40093.20

Matrix: Ground Water  
Sampled on 04/06/99 by ECS  
Received on 04/07/99 by KC  
QC and Data Review by

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Courier

### Volatile Organics

EPA Method 8021B

Parameter for AB39148	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	1.0	04/20/99	CH
Toluene	Not detected	1.0	04/20/99	CH
Ethylbenzene	Not detected	1.0	04/20/99	CH
m,p-Xylenes	Not detected	2.0	04/20/99	CH
o-Xylene	Not detected	1.0	04/20/99	CH
Naphthalene	Not detected	1.0	04/20/99	CH
1,2,4-Trimethylbenzene	Not detected	1.0	04/20/99	CH
1,3,5-Trimethylbenzene	Not detected	1.0	04/20/99	CH
Methyl-t-butyl ether	Not detected	1.0	04/20/99	CH
Bromofluorobenzene (%SR)	120		04/20/99	CH

# SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: DUP  
Lab ID No: AB39149

Location: Falzo Gulf - Bellows Falls, VT  
Client Job No: 40093.20

Matrix: Ground Water  
Sampled on 04/06/99 by ECS  
Received on 04/07/99 by KC  
QC and Data Review by

Preservative: Refrigeration, HCl  
Container: 2 VOA Vials  
Condition of Sample as Received: Satisfactory  
Delivered by: Courier

### Volatile Organics

EPA Method 8021B

Parameter for AB39149	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	1.0	04/20/99	CH
Toluene	Not detected	1.0	04/20/99	CH
Ethylbenzene	Not detected	1.0	04/20/99	CH
m,p-Xylenes	Not detected	2.0	04/20/99	CH
o-Xylene	Not detected	1.0	04/20/99	CH
Naphthalene	Not detected	1.0	04/20/99	CH
1,2,4-Trimethylbenzene	Not detected	1.0	04/20/99	CH
1,3,5-Trimethylbenzene	Not detected	1.0	04/20/99	CH
Methyl-t-butyl ether	Not detected	1.0	04/20/99	CH
Bromofluorobenzene (%SR)	110		04/20/99	CH

# SPECTRUM ANALYTICAL, INC.

## Laboratory Report

Client ID: TRIP  
Lab ID No: AB39150

Location: Falzo Gulf - Bellows Falls, VT  
Client Job No: 40093.20

Matrix: Deionized Water  
Sampled on 04/06/99 by ECS  
Received on 04/07/99 by KC  
QC and Data Review by

Preservative: Refrigeration, HCl  
Container: 1 VOA Vial  
Condition of Sample as Received: Satisfactory  
Delivered by: Courier

### Volatile Organics

EPA Method 8021B

Parameter for AB39150	Result (in ug/L)	MDL	Analyzed	Analyst
Benzene	Not detected	1.0	04/20/99	CH
Toluene	Not detected	1.0	04/20/99	CH
Ethylbenzene	Not detected	1.0	04/20/99	CH
m,p-Xylenes	Not detected	2.0	04/20/99	CH
o-Xylene	Not detected	1.0	04/20/99	CH
Naphthalene	Not detected	1.0	04/20/99	CH
1,2,4-Trimethylbenzene	Not detected	1.0	04/20/99	CH
1,3,5-Trimethylbenzene	Not detected	1.0	04/20/99	CH
Methyl-t-butyl ether	Not detected	1.0	04/20/99	CH
Bromofluorobenzene (%SR)	125		04/20/99	CH

# Spectrum Analytical, Inc.

## Laboratory Report Supplement

### References

- Methods for the Determination of Organic Compounds in Drinking Water. EPA-600/4-88/039. EMSL 1988.
- Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. EMSL 1983.
- Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. EPA 600/4-82-057. EMSL 1982.
- Test Methods for Evaluating Solid Waste. Physical/Chemical Methods. EPA SW-846. 1986.
- Standard Methods for the Examination of Water and Wastes. APHA-AWWA-WPCF. 16th Edition. 1985.
- Standard Methods for Comparison of Waterborne Petroleum Oils by Gas Chromatography. ASTM D 3328. 1982.
- Oil Spill Identification System. U.S. Coast Guard CG-D-52-77. 1977.
- Handbook for Analytical Quality Control in Water and Wastewater Laboratories. EPA 600/4-79-019. EMSL 1979.
- Choosing Cost-Effective QA/QC (Quality Assurance/Quality Control) Programs for Chemical Analyses. EPA 600/4-85/056. EMSL 1985.

### Report Notations

Not Detected,	=	<i>The compound was not detected at a concentration equal to or above</i>	
Not Det, ND or nd		<i>the established method detection limit.</i>	
NC	=	<i>Not Calculated</i>	
MCL	=	<i>EPA Maximum Contamination Level</i>	
VOA	=	<i>Volatile Organic Analysis</i>	
BFB	=	<i>4-Bromofluorobenzene</i>	<i>(An EPA 624 Surrogate)</i>
p-DFB	=	<i>1,4-Difluorobenzene</i>	<i>(An EPA 624 Surrogate)</i>
CLB-d5	=	<i>Chlorobenzene-d5</i>	<i>(An EPA 624 Surrogate)</i>
BCP	=	<i>2-Bromo-1-chloropropane</i>	<i>(An EPA 601 Surrogate)</i>
TFT	=	<i>a,a,a-Trifluorotoluene</i>	<i>(An EPA 602 Surrogate)</i>
Decachlorobiphenyl	=	<i>(an EPA 608/8080 Surrogate)</i>	

### Definitions

**Surrogate Recovery** = The recovery (expressed as a percent) of a non-method analyte (see surrogates listed above) added to the sample for the purpose of monitoring system performance.

**Matrix Spike Recovery** = The recovery (expressed as a percent) of method analytes added to the sample for the purpose of determining any effect of sample composition on analyte recovery.

**Laboratory Replicate** = Two sample aliquots taken in the analytical laboratory and analyzed separately with identical procedures. Analyses of laboratory duplicates give a measure of the preprecision associated with laboratory procedures, but not with sample collection, preservation, or storage procedures.

**Field Duplicate** = Two separate samples collected at the same time and place under identical circumstances and treated exactly the same throughout field and laboratory procedures. Analysis of Field duplicates give a measure of the precision associated with sample collection, preservation and storage, as well as with laboratory procedures.

**Relative Percent Difference (% RPD)** = The precision measurement obtained on duplicate/replicate analyses. %RPD is calculated as:

$$\%RPD = \frac{(\text{value1} - \text{value2})}{\text{ave. value}} * 100\%$$



# CHAIN OF CUSTODY RECORD

Page 1 of 1

## Special Handling:

- ☒ Standard TAT - 7 to 10 business days
- ☐ Rush TAT - Date Needed: \_\_\_\_\_
- All TATs subject to laboratory approval; min. 24 hour notification needed for rushes.
- Samples disposed of after 60 days unless otherwise instructed.

Report To: ECS - VT

Project Mgr.: D. Burk

Invoice To: ECS - MA

P.O. No.: \_\_\_\_\_ RQN: \_\_\_\_\_

Project No.: MA 120 GOLF 40093.20

Site Name: Falzo Golf

Location: Bellows Falls State: VT

Sampler(s): JCP

1=4°C 2=HCl 3=H<sub>2</sub>SO<sub>4</sub> 4=HNO<sub>3</sub> 5=NaOH 6=MeOH 7=\_\_\_\_\_

DW=Drinking Water GW=Ground Water WW=Waste Water  
 SO=Soil SL=Sludge O=Oil X1= D.H<sub>2</sub>O X2=\_\_\_\_\_

G=Grab C=Composite

### Containers:

### Analyses:

### Notes:

Lab Id:	Sample Id:	Date:	Time:	Type	Matrix	Preservative	pH	# Of VOA Vials	# Of Amber Glass	# Of Clear Glass	# Of Plastic								
AB 39146	ECS-1	4/6/99	1:40	G	60	12		2					1						
AB 39147	ECS-2		1:55	G	60	12		2					1						
AB 39148	ECS-3		1:48	G	60	12		2					1						
AB 39149	DUP		—	G	60	12		2					1						
AB 39150	Trip		—	G	60	12		1					1						
AB																			
AB																			
AB																			
AB																			
AB																			

### Additional Instructions:

VT VOC Scan

Collection date is 1/10 per fax revision

☐ Fax results when available to ( )

### Relinquished By:

Stafford

### Received By:

Stafford

### Date:

4/7/99

### Time:

12:35pm